A Literature Review of Peer Review Models in Healthcare

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Edge Hill University

EPA Unit for Evaluation & Policy Analysis

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A report for NHS England Quality Surveillance Team

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Executive Summary

NHS England monitors the quality of all specialised commissioned and cancer services in England. The Quality Surveillance Team (QST), as part of the wider Quality Assurance Improvement Framework (QAIF), plays a key part in assessing the quality of those services.

QST uses peer reviews visits of clinical teams as part of its quality assurance processes. At the moment, QST are assessing the effectiveness of its peer review processes and have commissioned the Unit for Evaluation & Policy Analysis at Edge Hill University to conduct a literature review to investigate the evidence base of the current models of peer review.

The literature review revealed five domains of peer review programmes as reflected in published academic studies. Four of these domains cover the aims and objectives of peer review (the 'what'); the intervention itself (the 'how'), the theory of intervention (the 'why should it work') and the staff involved in the process (the 'who'). In addition, we summarise the methodological and evaluative evidence of the existing evidence in the 'research' category outlining *how* studies so far have investigated peer review programmes and what the implications are for future studies.

The report concludes that the efficacy of peer review processes remain poorly evidenced, mainly due to their complex nature and a lack of clearly articulated logics of intervention.

Given the plurality of approaches in the field, a key requirement of future research and evaluation is the development of robust models of change or logics of programme impact which can then be tested and allows programme makers to refine peer review processes.

Contents

1. Background

NHS England monitors the quality of all specialised commissioned and cancer services in England. The Quality Surveillance Team (QST), as part of the wider Quality Assurance Improvement Framework (QAIF), plays a key part in assessing the quality of those services. To discharge its role, the QST has developed a QST framework that maps onto the 5 CQC key questions:

- Are services safe?
- Are they effective?
- Are they caring?
- Are they responsive to people's needs?
- And, are they well-led?

1.1 QST framework

The QST framework uses defined metrics to collect information from each provider on an annual basis through a self-report process. The report is based on quality indicators that are aligned to the six programmes of care in England and reflect the particular service specification. The framework is implemented through an annual self-declaration process and a peer review process. The self-declaration process allows QST to obtain relevant data through an established Quality Surveillance Information System (QSIS) where categories are populated by service responses, then gathered centrally and analysed by regional hubs. Aggregated reports for services are then reviewed and actions are agreed following engagement with commissioners and service leads. Additional surveillance actions are expected where services score less than 100 percent of their service's previously agreed quality indicators or fail their good practice compliance threshold.

Three types of actions are possible. Option 1 is routine surveillance. Option 2 is enhanced surveillance, involving either provider or commissioner action, or both. Option 3 is peer review. Options can be combined depending on the level of risk assessed by QST in consensus with provider and commissioner of a specific service.

1.2 Peer Review Process

The Quality Surveillance Team have developed a Standard Operating Procedure (SOP) for their peer review process. This SOP outlines the objectives, processes, and the responsibilities of everyone involved. The QST are keen to review the current use of peer review to identify areas for improvement, to maximise its impact on services as part of the quality improvement and quality assurance process and ensure the effectiveness of the process. Therefore, the QST have commissioned the Unit for Evaluation & Policy Analysis at Edge Hill University to conduct a literature review to investigate the evidence base of the current models of peer review.

2. Method

2.1 Aim

The aim of the literature review was to gather and synthesise evidence on models of peer review, and, their potential benefits, advantages and impact on service improvement.

The literature review was guided by two research questions:

1) What models currently exist for peer reviews?
2) How effective are these different models in improving services?

Studies of peer reviews of clinical performance data were excluded.

2.2 Search Strategy

The literature review utilised a systematic search strategy and then employed a narrative synthesis of the identified studies. In consultation with the funder, a focussed search strategy was developed, directed around the key concepts of 'peer review', 'service improvement', and 'outcomes'. The search was then applied to PubMed, and the Web of Sciences (which included seven databases including MEDLINE, the Web of Sciences Core Collection and BIOSIS Citation Index). A Google search was applied to identify relevant policy/grey literature. Only publications in English and published after 1990 were selected for the literature review. All types of papers, study design, and methods were included as well as non-empirical papers such as discussion or position papers.

2.3 Analysis

The search identified 4127 documents. After removing duplicates, there were 2,815 articles remaining. Title screening was applied to these articles and undertaken by one independent researcher, and this resulted in 221 papers remaining. Abstract screening was then undertaken by the same researcher. This screening identified 75 papers requiring full-text retrieval. Full-text screening was split equally between three researchers, the articles were assessed against a pre-defined inclusion and exclusion criteria: Does the article offer a model of peer review? Does the article offer elements or standards of a peer review? Any papers flagged for discussion on inclusion were resolved by consensus of opinion. From this screening, 16 papers were retained for inclusion in the review. Full-text analysis was undertaken by one researcher and findings are reported in the section below.

3. Findings

3.1 Current research on peer review

Peer reviews are considered a key mechanism to ensure quality and safety in health care systems. They involve direct (face to face) or indirect (remote) review of services through the analysis of routinely collected data, review of self-reports, and/or observations of care practices.

Peer review is used in many different areas of the health care system and is being employed in a variety of fields with a range of different aims and objectives. In the current literature, peer review is mainly seen as a tool for quality improvement, creating opportunities for different professional groups or entire services to innovate, identify good practice, and share learning across organisational boundaries.

Peer review can occur within one organisation, between organisations as reciprocal peer review, or through visits by a dedicated established peer review team. Peer reviews may have a professional, organisational, or system wide focus. The aims and objectives of current peer reviews as identified in the literature also vary considerably, with some assessing clinical outcomes, others evaluating services and identifying areas for improvement, or a mix of both.

A critical difference between peer reviews lies in their objective. Whilst some intend to measure the compliance of services or professionals with specific guidelines or sets of indicators, others are designed to explore the potential for improvement, good practice and innovation. Compliance orientated peer review systems usually operate on the basis of a specific indicator list, containing benchmarks of necessary quality and/or safety measures, whilst peer reviews designed as improvement and innovation interventions are based on the assessment of shared learning across health systems and professions.

Given that QST employs parameters of compliance (standards and indicators) as well as contains a service development and service improvement dimension, literature of both types have been included in this analysis.

In addition to the high variability of intention, aims and objectives and main thrust of peer review programmes in the literature, the absence of UK based studies is also noteworthy. Apart from a study by Walshe et al. there was no peer reviewed publication focusing on UK peer review in the NHS (Walshe, Wallace, Freeman, Latham, & Spurgeon, 2001).

It is also important to note that the current literature offers mainly descriptive studies, featuring predominantly observational non-comparative study designs, and qualitative data collection and data analysis methods. The literature rarely contains models or logics of the peer review interventions that can be tested. Whilst there is some research on the mechanism, conditions and effectiveness of feedback, there is so far no overarching model of peer review that details the various components, their logic

or theory of change, which would allow the development of a peer review framework that can be tested subsequently.

The literature review revealed five investigative domains of peer review programmes as reflected in published academic studies. Four of these domains cover the aims and objectives of peer review (the 'what'); the intervention itself (the 'how'), the theory of intervention (the 'why should it work') and the staff involved in the process (the 'who'). In addition, we summarise the methodological and evaluative evidence of the existing evidence in the 'research' category outlining *how* studies so far have investigated peer review programmes and what the implications are for future studies.

3.2 Domain 1 - The aims and objectives of peer review - the 'what'

The field of peer review studies is characterised by a considerable variety of what peer reviews are supposed to achieve. The main difference across peer review programmes relates to the aims and objectives. The most prominent division occurs between peer review as a mechanism to ensure compliance of a service or organisation with predefined guidelines or safety and quality indicators (Heaton, 2000; Nicolini, Hartley, Stansfield, & Hurcombe, 2011) and peer review as a tool to initiate service innovation, service development and improvement and/or facilitate shared learning processes (Heaton, 2000; Rout & Roberts, 2008).

In most peer review programmes both of these types of aims are present. The decision on where the emphasis of the peer review programme ought to lie influences decisions about how to operate the peer review. Where peer reviews are mainly seen as part of a compliance process of health services, a clear indicator set of safety or quality measures has to be in place. This is often underpinned by professional guidelines, patient satisfaction measures or system wide organisational and governance indicators. LeClair Smith offers a typical broad definition of peer reviews as opportunities 'to advance skills, enhance quality improvement, improve patient outcomes and support culture of safety (LeClair-Smith et al., 2016). Rout and Roberts outline a similar programme within nursing (Rout & Roberts, 2008) whilst Curnock investigates the effectiveness of peer reviews as part of the GP revalidation process (Curnock, Bowie, Pope, & McKay, 2012).

Where shared learning and service development or improvement are at the centre of peer reviews, the programmes are more likely to place emphasis on the nature, length and depth of peer interaction (Payne & Hysong, 2016), leading to questions of who should carry out the peer review and how. Aveling et al (Aveling et al., 2012) detail the operational and behavioural aspects of peer reviews seen as a mechanism to influence professional practice through feedback. They focus on issues such as the credibility of the process, the structure of visits, the peer contact and peer pairing process as important factors determining the outcome of peer review visits. Bergquist

echoes these concerns when discussing peer reviews as a type of knowledge making or sense making activity amongst professionals (Bergquist, Ljungberg, & Lundh-Snis, 2001).

The difference between inspection and peer review is also discussed by Nugent (Nugent, 2014) who argues that peer reviews should be distinguished from remedial actions where services fall short of a particular quality benchmark. Instead peer reviews should be about innovation and how to embed a culture of improvement in a service.

Key findings

- Significant variability of peer review approaches
- Two dominant modes of peer review: Compliance or service improvement/service development
- Unclear how diffusion of good practice and shared learning is to occur in most programmes

3.3 Domain 2 - The nature and scope of peer review - the 'how'

The literature identifies a range of peer review interventions that may be implemented. Some programmes utilise indicator sets and self-reports prior to peer visits, some of them operate mutual or reciprocal organisational visits, and others use peer reviews through a dedicated permanent peer review team (Nugent, 2014). The literature clearly outlines the different potential effects of these different methods and components of peer review. Consequently, different peer review methods also frame the direction of research and evaluation.

Reciprocal peer review programmes are often viewed through the prism of ownership of change, acceptance of peer review staff and their recommendations. Payne clearly identifies the process of peer review as more important than the content of peer review, indicating that research and evaluation should focus on the *how* of peer interaction when investigating the effectiveness of peer review. He asks what makes peer review and feedback acceptable to clinicians and questions whether it influences staff behaviour. His study includes a model of feedback impact which contains characteristics determining feedback effectiveness, such as the environment of peer reviews (the wider policy context, the timeliness and time constraints of peer review); the locus of control over what is being peer reviewed (compliance frameworks and sanctions), the core values of peer review (collegial and voluntary versus mandatory and imposed), and the emotional impact on staff (stress, tensions, refusal to cooperate).

The study highlights the importance of the peer review and feedback interaction, its conditions and context, and contrasts this with the dominant interpretation of peer review in the literature as a simple intervention based on a linear effect logic, simply applying measures to a service.

Payne's study leads to questions about the reaction and response of staff to peer review reports, which in turn raises questions about how to measure the impact of peer review visits in the long term (Payne & Hysong, 2016). There are some indications in the literature that reciprocal peer reviews (where staff in one organisation are matched with staff in another organisation) are the most effective in terms of shared learning, identifying and disseminating good practice. On the other side of the scale are those peer review programmes that are based on compliance frameworks which may create issues around who owns the recommended and necessary changes and how these changes are perceived by staff.

Much discussed aspects of peer reviews in the literature is the scope, length and depth of the any peer review. This involves issue of the extent of care quality indicator sets, the nature of the process by which these sets are agreed between the peer reviewing and peer reviewed service, as well as the length of visit.

These aspects define the way in which the peer review visits are perceived, and recommendations are accepted, or learning is adopted across the organisation. Critical questions around the scope and length are the time it takes to prepare and discuss self-reports, the resources needed to produce these reports and/or respond to peer review visits, as well as the anticipated changes required in the wake of peer reviews.

Walshe reports that most peer reviews are perceived as producing confirmatory rather than revelatory findings which may affect the view of staff about the purpose and utility of the programme (Walshe et al., 2001).

Key findings

- Lack of clarity about specific components or 'active ingredients' in peer review when perceived as an intervention in a service
- Potentially components may be: self-report, the visit, or feedback and follow up

3.4 Domain 3 - Logic or theory of change - the 'why'

There is significant consensus in the literature that robust evidence of the impact of peer review programmes is still lacking. The main reason for this is, according to the studies reviewed, that peer review programmes are usually poorly defined and rarely based on explicit and clearly formulated theories of change or logics of intervention. How is a peer review supposed to influence service quality and safety? Since peer review programmes are characterised by considerable variation in their aims and objectives as well as scope and focus, generic theories of change for peer review programmes are unlikely to emerge. An additional barrier to developing logics of intervention is that peer reviews combine several components that may have an effect on staff and their practices. In effect, peer reviews are thus not interventions as such but complex developmental programmes which involve a multitude of interventions each likely to have their own logic of impact.

Kilsdonk et al investigate the impact of peer review and conclude that current evidence does not allow robust conclusions about their effectiveness (Kilsdonk, van Dijk, Otter, Siesling, & van Harten, 2014). This is echoed by Rout and Roberts (Rout & Roberts, 2008). Kilsdonk outline a research design flowchart which charts the most promising avenues for future studies. A key area requiring scientific attention is the mapping of theories of change for each peer review component, ranging from the initial contact, self-report to feedback, post-visit follow up and monitoring process where in place.

There is some debate in the literature about the impact of peer reviews on professional and organisational autonomy, intersecting with questions about governance and regulatory or mandatory quality and safety frameworks in the health care system. Nicolini emphasises the role of the institutional context in peer reviews, which raises questions about the possibility of generic logics of impact of peer review programmes (Nicolini et al., 2011). Given that components and benchmarks of peer reviews are often specific to professional services, it may be impossible to produce and test a generic model of peer review impact.

Heaton and colleagues investigate the components and thrust of four peer review systems in place in health and engineering systems and conclude that peer review systems are converging on a specific approach (Heaton, 2000).

Some of the literature indicates that the question of 'why' a peer review visit should make a difference to services is tied up with *how* feedback is organised, delivered and ultimately being perceived and acted upon. Hysong argues that in order to optimise feedback effectiveness, conditions of feedback such as timeliness, individualisation of the content of feedback, and non-punitiveness are important factors (Hysong et al., 2016; Payne & Hysong, 2016). They present a feedback intervention theory which may usefully frame future work in this area.

Key findings

- Unclear how programme makers expect the programme to work
- Two approaches offer significantly different theories of change: interprofessional interaction versus top-down compliance exercise
- Peer review likely to be characterised by complexity of impact rather than singular linear casual nexus.
- Logic models of various 'active components' of programme required for further analysis

3.5 Domain 4 - The interaction of staff - the 'who'

Where peer reviews are conceived as improvement or service development programmes, the focus of research studies is often the quality and nature of the feedback. Researchers identify the type of staff receiving and providing feedback as a critical component for the effectiveness of peer reviews. Whilst there is less emphasis on the personal nature of the peer review interaction in those studies that conceptualise peer reviews as a compliance exercise, there is agreement in the literature that the behavioural and socio-dynamic aspects of peer review programmes are so far under-researched.

In particular the type, condition and nature of the feedback is seen by some as a key mechanism to ensure the lasting impact of the peer review visit. One aspect of this is whether staff are colleagues known to each other, have a prior professional relationship, or previous collaborative connections and how they perceive of their mutual status and reputation in the field. Where peer reviewers are professionals equal in status and perceived reputation to their reviewed colleagues (Curnock et al., 2012; Nicolini et al., 2011), investigations of the effect of feedback focus on professional knowledge, the diffusion of new or recommended good practices, and peer norming effects.

Where peer reviewers are not known to staff in the reviewed service, the emphasis in the literature is on the conditions under which feedback is acceptable to staff, who should conduct peer review visits and who should interact with peer reviewers. Forel and colleagues articulate concerns about bias amongst some peer reviewers as well (Forel, Marlow, Vandepeer, & Hill, 2019).

A specific distinction is made by Rivas and Taylor between managers and clinicians as recipients of peer review feedback (Rivas et al., 2012). They argue that the effectiveness of managers to implement changes following peer visits differs from that of clinicians due to their different role and ability to influence clinical practice.

Key findings

- Social and behavioural aspects of peer review critical for impact: Who reviews and who is being reviewed?
- What is impact of peer review on staff, professional groups and how does it interact with their clinical or managerial roles?
- How are peer review findings disseminated within the organisation and what is the role of action plans?

3.6 Domain 5 - Research and evaluation of peer review programmes

Research studies of peer review programmes have employed a variety of investigative methods. The majority of studies however offer only descriptions of interventions, rarely developing models of peer review impact or logics of change. There is currently no published study that has tested any theories of impact, apart from studies of regulatory quality and safety regimes which may employ peer review of data (these studies were not part of this literature review). One exception is the study by Forel who examines the efficacy of practice visits on patient outcomes. The study is a rapid review of evidence and includes nine papers in the analysis. Forel details enablers of peer review efficacy listing, amongst others, the existence of visit protocols, advanced planning and preparation and the compositions of the visiting team (Forel et al., 2019).

The methods and designs utilised so far in this research field are predominantly observational non-comparative, employing action research data collection instruments or visit observations (Lofman, Pietila, & Haggman-Laitila, 2007). The main barrier to effective research and evaluation in this field is the lack of a robust model of impact of peer review. The complexity of the programme and its various components contribute to the difficulty of applying a singular, linear theory of change. Instead, peer review programmes may best be studied as service development programmes which implement a multitude of components, each with their own theory of impact (Craig et al., 2016).

The literature notes that the various components also interact to produce or hinder the effectiveness of peer reviews. The consequence is that studies present only anecdotal evidence or are based on largely unrepresentative surveys of professionals who have experienced peer reviews (Pfeiffer, Wickline, Deetz, & Berry, 2012). The literature notes that, ultimately, it remains unclear as yet what to measure (LeClair-Smith et al., 2016), how to measure it (Hysong et al., 2016) and what the impact of the specific context of peer review visits is (Rout & Roberts, 2008).

Key findings

- There is a clear need for the development of verifiable models of change or theories of potential impact.
- There is a need for the development of a suitable evaluative framework mapped against the specific theories of impact.
- There is a need for mixed-methods studies moving beyond the description of services and producing systematic and robust evidence about the effectiveness of peer review programmes.

4. Conclusion

Existing literature investigating peer review programmes is characterised by a variety of research and evaluation approaches. Peer review programmes themselves differ considerably in their intended impact, their aims and objectives, their operational processes, and the extent to which programme makers have formulated clear theories of change.

The existing published evidence shows that peer review processes remain poorly evidenced in their efficacy, mainly due to the complexity of their nature, the lack of clearly articulated logics of intervention or multilinear effect of their various components.

A key under-researched aspect of peer review programmes appears to be the behavioural and social impact of peer visits. Whilst peer review programmes conceived as compliance exercises are paying little attention to the dimensions of professional interaction between those reviewed and those reviewing, those studies which focus on the efficacy of feedback stress the nature, extent and dynamics of interprofessional interaction.

Given the plurality of approaches in the field, a key requirement of future research and evaluation is the development of robust models of change or logics of programme impact which can then be tested and refined.

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6. Appendix

6.1 Search strategy and terms

"Peer Review Models"
"Peer Review Mechanisms"
"Peer Review Systems"
"Peer Review" & "Service Improvement"
"Peer Review" & "Clinical Practice"
"Peer Inspection"
"Peer Review" & "Inspection"
"Peer Review" AND "Quality Assurance" AND "Outcomes"
"Peer Review" AND "Quality Assurance" AND "Impact"
"Peer Review" AND "Quality Assurance" AND "Effectiveness"
"Peer Review" AND "Quality Control" AND "Outcomes"
"Peer Review" AND "Quality Control" AND "Impact"
"Peer Review" AND "Quality Control" AND "Effectiveness"
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"Peer Review" AND "Clinical Practice" AND "Outcomes"
"Peer Review" AND "Clinical Practice" AND "Impact"
"Peer Review" AND "Clinical Practice" AND "Effectiveness"
"Peer Review" AND "Safety" AND "Outcomes"
"Peer Review" AND "Safety" AND "Impact"
"Peer Review" AND "Safety" AND "Effectiveness"
"Peer Review Visits"
"Peer Review Visits" AND "Service Improvement"
"Peer Review Inspection"

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